Pathways to Marital and Non-Marital First Birth: the Role of His and Her Education

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Abstract A key demographic trend of the past decades has been the increasing share of first births occurring outside marriage. In analysing factors associated with this, scholars have tended to focus on the characteristics of only one of the parents, typically the mother. This study examines the pathways to parenthood from a couple's perspective, focusing on the role of educational pairings, i.e. the combination of his and her education. By means of a multistate approach, we examine the connection between educational pairings and the occurrence of the first birth inside or outside marriage for 12 European countries. The presence of at least one highly educated partner lowers the rate of non-marital first births. Strikingly, it does not matter whether it is he or she who has the highest level of education.

Key words: Non-marital childbearing, first birth, couple's fertility, educational assortative mating

Introduction

For many people, marriage is no longer a prerequisite for childbearing, especially since the 1970s, and, consequently, rates of childbearing within cohabitation have increased over time (Sobotka and Toulemon 2008; Perelli-Harris et al. 2012). Although changes in family behaviour have not occurred everywhere to the same extent and speed, there are at least two common features across European countries. First, non-marital childbearing has not spread homogenously: differences between educational subgroups have been detected (Perelli-Harris 2010). This is associated with the fact that new family forms play a key role in the reproduction of social inequalities and in affecting children's well-being in different social strata (McLanahan and Percheski 2008). Second, within Europe, the increase in non-marital childbearing has been largely attributed to the rise of childbearing within cohabiting unions rather than to single-motherhood (Kiernan 2004; Perelli-Harris et al. 2010).

In studies about new family forms, scholars have focused mainly on the relation between the mother's human capital and non-marital childbearing and rarely on the link between human capital and non-marital fatherhood (Carlson et al. 2011; Perelli-Harris et al. 2010). Acknowledging that most non-marital births occur within co-residential unions, the decision to have a child usually involves two persons, i.e. the couple. However, scholars have disregarded the role of partners' educational characteristics as determinant of non-marital childbearing, keeping an individual–female perspective. Only in recent years, the partner's role is increasingly considered in studies as a potential determinant of the transition to parenthood (see e.g. Begall 2013; Jalovaara and Miettinen 2013; Gustafsson and Worku 2006; Nitsche et al. 2015; Vignoli et al. 2012), but empirical evidence on how it is related to non-marital family formation is still scarce (Trimarchi et al. forthcoming).

The couple's perspective is important because the focus on the features of only one partner may lead to a misinterpretation of the results (Gustafsson and Worku 2006). Focusing on education, the main consequence is that the effects of the educational level of one partner may to some extent actually reflect the effects of the education of the other partner. As a result, if gender differences exist

in the association between education and non-marital fertility, individual-level results would be inconclusive: negative and positive effects will cancel out, leading to a flat gradient. On the other hand, if the association between education and non-marital fertility is the same for both sexes, individual-level studies tend to overestimate or to underestimate the educational gradient. In both cases, depending on the prevalent educational mating pattern, i.e. on the way partners tend to sort homogamously or heterogamously according to their level of education, the bias could be more or less serious. In this regard, another reason to focus on the association between education of both partners and non-marital childbearing is linked to the changing composition of mating markets. Individuals with difficulties to find a suitable partner may be inclined to settle for a less committed partnership without, however, renouncing to childbearing (Harknett 2008; Van Bavel 2012). This may be the case for the highly educated women who settle with a lower educated partner, especially since the reversal of the gender gap in higher education (Van Bavel 2012).

Furthermore, considering both partners has also implications on the societal level, because the way partners combine their human-capital, i.e. the educational pairing of his and her education, affects the reproduction of inequalities in societies. Educational assortative mating patterns reflect the degree of openness in a society and affect the distribution of resources in societies (Blossfeld 2009; Schwartz 2009). If men and women mate assortatively according to their socio-economic status and if both lower educated men and lower educated women tend towards higher rates of cohabitation and unmarried parenthood, we would expect a concentration of these family behaviours among couples with lower socio-economic resources. This would lead to an exacerbation of social inequalities in societies driven by changes in family forms.

In this paper we aim to fill the gap in the literature on the educational gradient of non-marital childbearing by examining the link between educational pairing and the transition to first child, while distinguishing between couples who got married before the birth of the child and those who did not. How is the combined education of the partners associated with pathways to first birth? A couple may

make the transition to the first child without going through the transition to marriage. Alternatively, a couple may first marry and then have the first child. To investigate which of these pathways a couple has followed and how both his and her education are associated with the trajectory, we apply multistate modelling. This kind of model is suitable to understand how differences in life histories are associated with specific background characteristics, e.g. the educational pairing of the couple, since they are estimated using data that track occurrences of events and those units at risk for each event of interest (Willekens 2014). We used the retrospective fertility and partnership histories for 12 European countries recorded in the Generation and Gender Surveys (GGS) and in the Italian Family and Social Subjects (FSS) survey of 2009.

Inequalities, new family forms and the role of educational assortative mating

On a societal level, the diffusion of more liberal family behaviours such as divorce, cohabitation and non-marital childbearing has often been interpreted as an expression of an ideational change in values and attitudes toward the family within the Second Demographic Transition (SDT) framework (Van de Kaa 1987; Surkyn and Lesthaeghe 2004). According to the SDT, both cohabitation and non-marital childbearing are considered, at least in an initial stage, prerogative behaviours of the more secularized individuals, typically the highly educated, as far as those behaviours are believed to be antithetic to traditional family forms and life paths (Lesthaghe 2010; Surkyn and Lesthaeghe 2004).

On the individual level, despite the steep increase in the level of non-marital fertility, marriage remains generally more conducive to childbearing than unmarried cohabitation (Baizan et al. 2003). Partners perceive higher commitment through marriage (Perelli et al. 2014) and in particular for men, marriage is perceived as expressing a higher degree of commitment than unmarried cohabitation (Lehrer et al. 1996). Since married unions tend to be more stable than unmarried ones, they tend to have higher fertility as well (Lillard and Waite 1993; Lillard et al. 1995; Baizan et al. 2003).

In particular, scholars have been interested in analysing the educational gradient in non-marital childbearing and how it varies over time and across contexts. To understand how non-marital family formation is associated with educational differences, scholars have privileged an individual-level of analysis. Only recently, the focus has been shifted towards couples' behaviour and on the interaction between partners' socio-economic characteristics, including his and her education (Van Bavel 2012; Trimarchi et al. forthcoming).

Non-marital family formation and the role of educational level

A strand of literature emphasizes the lack of socio-economic resources as determinant in the choice of cohabitation over marriage to form a new family (Perelli-Harris and Gerber 2011; Perelli-Harris et al. 2010). More specifically, for many people, marriage is associated with an expensive wedding ceremony and marriage as a whole requires that the couple is able to secure their long-term economic independence (Kravdal 1999; Salvini and Vignoli 2014). As a consequence, non-marital childbearing is expected to be more prevalent among the least educated. Perelli-Harris and Gerber (2011) called this gradient the "pattern-of-disadvantage". Insofar as marriage is becoming "a province of the most educated" (Goldstein and Kenney 2001:506), the diffusion of cohabitation and non-marital childbearing among the lower educated would exacerbate inequalities in society. Children born to highly educated women would enjoy a growing amount of resources, both in social and economic terms. Children born to low educated women would face the dissolution of their parents' union more frequently and suffer higher poverty rates (McLanahan 2004; McLanahan and Percheski 2008).

The "pattern of disadvantage" framework found support from several empirical studies across different contexts. Perelli-Harris et al. (2010) found that in Austria, France, the Netherlands, Norway, Russia, United Kingdom and Western Germany, the negative educational gradient in the transition to first birth for women was steeper for non-marital births compared to marital births. In Italy, the educational gradient of the first non-marital birth compared to the first marital birth was U-shaped. The authors related these findings to the low prevalence of cohabitation and argued that in contexts

where non-marital childbearing is just emerging, as in Italy, it is more prevalent among both low and highly educated women than among the group in between. In contrast, the low educated are more likely to have a non-marital child than all the other groups if cohabitation is common. In France, the link between education and non-marital childbearing has changed over time: highly educated women were driving the increase in non-marital childbearing during the 1970s and 1980s; from around the start of the 21st century, the positive educational gradient has disappeared (Perelli-Harris et al. 2010). In Hungary (Spelder and Kamaras 2008) and the Czech Republic (Sobotka et al. 2008), the diffusion of non-marital childbearing followed a bottom-up rather than a top-down pattern.

While the pattern of disadvantage framework mainly focuses on women's socio-economic conditions, Oppenheimer (2003) proposed a theoretical argument based on the relation between men's socio-economic conditions and the rise of cohabitation. Men with poor and uncertain economic prospects favour cohabitation as union type because a low and unstable economic situation may undermine their capabilities to make a strong commitment (Oppenheimer 2003). Moreover, men's uncertainty on the labour market affects also the lifestyle that they will develop. Thus men who have uncertain careers may have difficulties in finding a suitable partner, which would lead to delay marriage. All in all, studies in European contexts have found that men with a lower socio-economic position are less likely to get married (Kalmijn 2011). From the study by Carlson et al. (2011), it is clear that the pattern of disadvantage is also applicable to US men. The authors found that non-marital fatherhood is negatively associated with education: the higher the level of education, the lower the risk of having a child outside marriage.

Given these earlier findings and based on the economic argument that more education brings more resources to get married, we formulate *Hypothesis 1*: there is a positive educational gradient in family formation through marriage. More specifically, *Hypothesis 1a* contends that there is a positive educational gradient with regard to the transition from cohabitation to marriage. *Hypothesis 1b* concerns the transition from cohabitation to parenthood: couples with more education are expected

to have lower birth rates while they are still unmarried than couples with less education. The presence of at least one highly educated partner is expected to be associated with a reduced risk of non-marital childbearing.

Non-marital family formation and the role of educational assortative mating

The theoretical arguments mentioned so far only look at the human capital of either women or men. More generally, studies on fertility have particularly privileged a female perspective rather than a couple's perspective, even if we know that most children are born to couples. An argument that has been used to justify the focus on just one of the partners is that people often mate with individuals who share similar characteristics (Corijn et al. 1996).

The tendency to form homogamous partnerships has indeed been documented for several characteristics, e.g. age, ethnicity, religion, education, etc. (Kalmijn 1991, 1994). Our focus here is on assortative mating by education, because education may affect individual economic potential and also individual tastes, preferences and lifestyles (Blossfeld 2009). In general, educational homogamy remains the most common mating pattern in Europe (Blossfeld and Timm 2003; Hamplova 2009; De Hauw et al. 2017), but remarkable changes have occurred with regard to heterogamous couples. Recent studies have shown that unions in which the man is more educated than the woman (hypergamy) are now less common than unions in which the woman is higher educated than the man (hypogamy) (Esteve et al. 2012; Grow and Van Bavel 2015; De Hauw et al. 2017).

With the reversal of the gender inequality in education, there are more highly educated women reaching reproductive ages than highly educated men. As a result, many highly educated women will not be able to mate homogamously, given the lack of sufficient highly educated men. This implies that women who are willing to become mothers, may be inclined to mate with a lower educated partner in a less committed type of union like unmarried cohabitation (Van Bavel 2012). Research from the United States has indeed argued that the type of union is associated with the type of

educational match: "a different kind of relationship calls for a different kind of partner" (Schoen and Weinick 1993: 413).

Approaches that emphasize cultural aspects of educational assortative mating consider the match in lifestyles, values, and preferences (Blackwell and Lichter 2000). In the mate selection process, cohabitation is seen as the stage where partners evaluate each other according to their "cultural matching". As a consequence, unmarried cohabitations, where commitment may be weaker, could include relatively more heterogamous unions compared to marriages; matches that share more cultural traits will be more likely to make the transition to marriage (Blackwell and Lichter 2000; Saarela and Finnäs 2014).

Thus, homogamous partners are expected to have more similar beliefs and lifestyles, which would lead to strengthen their commitment through marriage (i.e. "cultural matching"). Based on this argument, we formulate *Hypothesis 2:* homogamous partners are expected to have a higher transition rate from cohabitation to marriage compared to the heterogamous couples.

The micro-economic approach to the household, instead, emphasizes the role of specialization within the couple. According to Becker's theory of partner's specialization, a dissimilarity of socio-economic resources between spouses induces higher gains from marriage because partners increase their interdependence by the division of labour, which may be attached to gender roles (Becker 1991). As a result, since educationally homogamous couples may be less likely to specialize, these couples may be more inclined to live within a more "equal" kind of union such as cohabitation, whereas more specialized couples would have greater gains from a long-term committed union such as marriage (Brines and Joyner 1999; Schoen and Weinick 1993). Following the specialization argument, the group of heterogamous couples cannot be considered homogeneous in the propensity for non-marital family formation.

We formulate three levels of comparison to highlight differences between educational pairings with regard to the propensity for non-marital family formation. First, for the reasons explained above,

educationally homogamous couples may have a higher propensity for non-marital family formation than heterogamous couples. Second, given that the gains from marriage according to Becker's framework depend on the traditional gender division of labour, couples where the man is more educated than the woman may be more inclined to marry because the difference in economic potential between the partners would strengthen the gains from marriage for both partners. Couples where the woman is more educated than the man would be less inclined to marry.

Third, while both homogamous and hypogamous couples are expected to have a higher propensity for non-marital family formation than hypergamous couples, we may expect that (of the former two) hypogamous couples have the highest propensity for non-marital family formation because the expected gains from marriage would be lowest. This is based on the assumption that there is a tendency for a traditional gender division of labour. The gains would be lower for women because their male partners have a lower earning potential, and the gains would be lower for men because their highly educated female partners may be less inclined to provide unpaid domestic work. As a result, the propensity for non-marital family formation of the educationally homogamous couples would be in between hypergamous couples, with the lowest propensity for non-marital family formation, and the hypogamous couples with the highest propensity.

Previous findings that account for the characteristics of both partners and how these affect the transition to a marital or non-marital birth are scarce. Trimarchi et al. (forthcoming) found that the presence of at least one highly educated partner decreases the risk of non-marital childbearing relative to marital childbearing in Austria (cohorts 1970-1983) and Eastern Germany (cohorts 1971-1973 and 1981-1983). In Western Germany, instead, the authors found that hypergamous couples are less likely to have a non-marital birth relative to marital compared to other groups of educational pairings. Overall, the results showed the importance of considering the combination of the educational level of both partners when studying non-marital childbearing and the role of different contexts. The authors, however, only focused on the transition to the first child, disregarding the intermediate step, i.e. the

transition to marriage (or not). Looking into a wider range of countries, in this paper we also account for the association between educational assortative mating and the transition to marriage, including couples who have not had a first child (yet).

Saarela and Finnäs (2014) focused on several family transitions and found that, in Finland, heterogamous couples have a higher risk of union dissolution, a higher risk of living in an unmarried union and a lower risk of becoming parents compared to the homogamous couples. Moreover, they found family formation within marriage to be more typical of the highly educated, whereas unmarried family formation is more common among the lower educated (Saarela and Finnäs 2014). These results strongly suggest that an interaction between homogamy and the level of education affects family formation behaviour of couples, highlighting the importance of a couple's perspective approach to fertility.

Based on these earlier findings as well as theoretical arguments, we formulate *Hypothesis 3* that focuses on the behavioural differences within the group of heterogamous couples in non-marital family formation. We expect that hypergamous couples are more inclined towards traditional family behaviours, while hypogamous couples are more prone to less conventional family behaviours, especially in countries with traditional gender roles expectations (i.c. Italy and Poland). This expectation stems from the Beckerian assumption that an education imbalance in favour of the male partner leads to a gendered division of labour which generates higher gains from marriage for both partners. This hypothesis may be reinforced by socio-economic arguments according to which, given the same level of education, men may have a higher earning potential than women. In particular, *Hypothesis 3a* concerns the transition from cohabitation to marriage: we expect that hypergamous couples have a higher rate of marriage compared to hypogamous couples. As a complement, *Hypothesis 3b* contends that hypergamous couples are more inclined to have a first child within marriage compared to hypogamous couples.

Data

We used the first wave of Generation and Gender Survey (GGS) data for 11 European countries (Austria, Belgium, Bulgaria, Czech Republic, Estonia, France, Hungary, Lithuania, Poland, Norway, Romania) and the Family and Social Subjects (FSS) 2009 for Italy. Since the FSS is the Italian version of GGS, we preferred to use the most recent survey instead of the Italian GGS conducted in 2003. To acquire information on both partners' characteristics, we selected only individuals who are in a union at the time of interview. For the GGS countries the information is derived from both male and female respondents. For Italy we could use only female respondents, since in the Italian GGS male respondents are either the partners of the female respondents, or single men with no information about previous partners' educational level. We focused on cohorts for which the respondents and their partners are born after 1950 because changes in family behaviours motivating our study occurred from the 1970s onwards, which implies that the cohorts affected were born in the 1950s or later. Considering the respondents born after 1950 has also methodological advantages, since according to Vergauwen et al. (2015), GGS data are suitable to study fertility especially for cohorts born after the mid-1940s and for periods after the mid-1970s. The focus is the transition to parenthood, thus we selected couples in which the woman was 15-45 years old at the beginning of the co-residential union and we excluded cases in which one of the partners had a child before in another relationship (overall we have 48,344 couples). Appendix A.1 details the number of cases that were and were not selected in our analytical sample for various reasons.

The main explanatory variable: educational pairings

Given the importance of the concept of assortative mating, social scientists have invested considerable effort in its measurement. On the macro level, scholars have been interested in measuring the propensity to marry partners of given characteristics using measures of attraction which also account for the pool of potential mates (Schoen 1981). For studies whose focus is on the micro level, on education in particular, the main concern has been how to include the best indicator which

could account both for the effect of education and the effect of educational differences between partners (Eeckhout et al. 2012).

Since the focus of this paper is on a micro-level, in line with previous studies on the effect of educational assortative mating on demographic behaviour (see e.g. Mäenpää and Jalovaara 2014), we have defined our main explanatory variable as the combined educational attainment of the partners. Collapsing categories from the international standard classification of education (ISCED 1997), we grouped individuals into three levels of attainment: low, medium and high. The first group includes those who completed primary plus lower secondary school (at least 8 years of schooling, ISCED 0, 1, 2). The medium category consists of individuals who attained the upper-secondary and those who also got a post-secondary level (ISCED 3, 4). Finally, respondents and their partners were defined highly educated if they got a bachelor/master/PhD degree (ISCED 5, 6).

In our model we used a compound measure of educational assortative mating which consists of three categories for couples where men and women have the same educational attainment, i.e. homogamous couples ("both low" (1); "both medium" (2), "both high" (3)); two categories for hypergamy (couples in which man is highly educated and the woman medium or low educated (4) and couples in which men are medium educated and women low educated (5)); two categories for hypogamy (couples in which the woman is highly educated and the man medium or low educated (6) and couples in which women are medium educated and men low educated (7)). A separate category is assigned in case of missing educational information for one of the partners.

It should be noted that the educational pairing variable is not time-varying because we did not have information about both partners educational trajectories, we only knew the graduation date of the respondent. Thus, our results may suffer of anticipatory bias, since partners may have acquired their highest educational level after the event of interest occurred. This is a concern especially with regard to the transition to parenthood: if individuals become parents before attaining the educational degree that they desire, parenthood may reduce the likelihood to achieve that specific level of

education (Kravdal and Rindfuss 2008). In Table 1 we report the proportion of respondents that acquired the level of education declared at interview after co-residence and after each of our event of interest, i.e. marriage and first birth. In the majority of countries, between 11-29% of the respondents attained their current level of education after starting living together with the partner. Italy and Norway represent exceptions. In Italy, this occurs only in the 3% of the cases, whereas in Norway almost 40% of the respondents in the sample has not reached the current level of education once starting to co-reside. The proportion of respondents that obtained their level of education after marriage is higher than 20% in Norway and two Baltic countries, between 10-20% in Central-Eastern European countries, and lower than 10% in Austria, Belgium, France and Italy. These proportions get lower when we look at the birth of the first child. In the majority of countries, among those who became parents, less than 10% attained the level of education after the birth of the child. Only in Norway, given the higher flexibility of the educational system, the proportion of respondents that becomes a parent before attaining the current level of education exceeds 20%.

Table 1 Proportion of respondents who attained the current educational level before marriage or before the birth of the child

	Respondents attaining education after co-residence (%)	N respondents	Respondents attaining education after marriage (%)	N respondents who got married	Respondents attaining education after 1st birth (%)	N respondents who got the 1st child
Austria	23.4	2366	9.6	1706	7.4	1747
Belgium	11.1	2642	8.1	2117	5.3	2158
Bulgaria	21.0	5031	19.4	4473	13.7	4590
Czech Republic	11.7	2577	11.8	2184	6.9	1989
Estonia	29.1	2364	24.7	1742	16.1	1995
France	17.3	3097	8.4	2350	5.6	2525
Hungary	17.3	3994	15.7	3407	9.7	3099
Italy	2.9	6213	2.6	5866	1.8	5382
Lithuania	28.0	3256	25.9	2892	16.8	2727
Norway	39.9	4819	29.5	3484	22.3	3981
Poland	20.3	7402	18.2	6980	13.1	6534
Romania	11.9	4583	11.0	4399	6.8	4001

Source: Authors' calculations on Generations and Gender Surveys and the Italian Family and Social Subjects (2009) samples.

Table 2 shows the distribution of the educational assortative mating variable - as it has been employed in the models. Homogamous couples represent more than half of the couples in all countries. The majority of couples consisted of both medium educated partners, with the exception of Belgium and Italy. In Belgium, most couples are homogamously highly educated (32%), whereas in Italy the majority are homogamously low educated couples (30%). Even if the most typical mating pattern is homogamy, it is interesting to look at the distribution of heterogamous couples. As we can see in Table 2, in the majority of countries, couples in which the woman is more educated than the man are more common than couples where the man is more educated than his partner. This is in line with recent trends of educational assortative mating which have been found across European and non-European countries (Esteve et al. 2012; Grow and Van Bavel 2015).

Control variables

We included the age difference between partners in our models because it is an important determinant of couple's fertility (Bhrolchain 1992; Bozon 1991). It is operationalized in five categories: age difference is 0 or 1 (considered as age homogamy); the woman is older than the man; the man is 2 to 4 years older than the woman; the man is 5 years or more older than the woman; and a missing category if the age difference between partners is not available. We also control for the respondent's sex; the woman's age at union formation and its square to control for non-linearities; the union's cohort in four categories: 1967-1979 (1); 1980-1989 (2); 1990-1999 (3); 2000-2010 (4). We added a control only for the union order of the respondent, since the union order of the partner is unavailable. Finally, we added a variable which specifies whether a conception occurred before marriage.

Table 2 Descriptive statistics by country

	Austria 2008-09	Belgium 2008-10	Bulgaria 2004-05	CzechRep 2005	Estonia 2004-05	France 2005	Hungary 2004-05	Italy 2009	Lithuania 2006	Norway 2007-08	Poland 2010-11	Romania 2005
Sex (%)												
Male	38.0	48.0	41.4	48.0	38.7	44.0	44.7		55.6	49.5	45.4	52.8
Female	62.0	52.0	58.6	52.0	61.3	56.0	55.3	100.0	44.4	50.5	54.6	47.2
Union's cohort (%)												
1967-1979	0.1	16.1	13.5	16.0	17.8	16.5	22.1	13.2	13.8	13.8	18.7	19.3
1980-1989	18.5	26.4	36.4	29.0	31.5	27.6	29.3	28.7	31.6	26.9	24.6	33.5
1990-1999	41.3	28.4	37.1	30.5	33.1	35.8	30.7	30.1	29.9	33.8	24.9	34.7
2000-2010	40.2	29.1	13.1	24.6	17.6	20.2	17.9	28.0	24.7	25.5	31.8	12.4
Educational pairings (%)												
Low homogamous	3.5	11.1	13.6	2.9	2.7	8.2	6.0	30.2	2.8	2.6	3.1	13.3
Med homogamous	52.6	17.1	44.4	62.2	42.3	28.5	53.4	25.1	49.4	22.0	54.5	50.9
High homogamous	11.0	32.3	14.1	7.9	14.9	23.3	11.1	6.8	16.2	26.0	14.9	8.7
He high She lower	13.5	8.3	3.6	9.7	7.8	7.6	5.7	4.5	8.6	8.3	4.8	4.4
He medium She low	8.3	7.2	5.5	4.8	4.2	9.9	9.5	10.6	2.8	7.5	4.7	16.1
He lower She high	7.8	14.5	13.0	5.2	21.0	13.9	10.1	8.5	14.0	16.8	12.6	3.0
He low She medium	3.3	8.0	5.6	5.1	7.1	8.2	4.1	14.3	6.1	5.5	4.7	3.7
Not available		1.7	0.2	2.2	0.0	0.6	0.0	0.0	0.1	11.4	0.7	0.0
Respondent union's order (%)												
First union	84.4	70.2	98.8	94.7	92.9	88.5	88.6	93.6	97.9	82.7	98.2	98.5
Higher order	15.6	29.8	1.3	5.3	7.1	11.5	11.4	2.1	2.2	17.4	1.8	1.5
Not available								4.4				
Age difference (%)												
Age homogamy (or <= 1 year)	22.2	28.1	20.1	23.3	27.2	26.5	20.3	25.2	25.6	25.4	25.8	19.8
Woman older 2+	12.4	12.2	6.8	7.2	12.7	13.7	10.1	7.2	10.6	11.8	10.6	8.2
Man older 2-4	37.7	36.9	38.8	42.2	34.8	37.0	39.4	36.6	44.0	38.5	39.6	36.7
Man older 5+	27.7	22.4	33.8	27.1	25.3	22.8	30.0	31.0	19.8	24.2	24.0	35.2
Not available	0.0	0.5	0.4	0.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Median Woman Age at union (years)	22	23	20	22	21	22	21	24	22	23	22	21
Median time in union till interview (years)	11.08	16.33	14.91	13.83	14.91	14.33	15.33	17.25	15.54	14.91	18.08	16.05
N events by transition												
Cohabitation to Marriage	974	740	2615	671	787	1238	564	536	580	1570	1141	654
Cohabitation to Kid	608	399	553	175	561	764	251	323	145	1633	390	270
Marriage to Kid	1139	1759	4037	1814	1434	1761	2848	5069	2582	2348	6144	3731
N respondents	2,366	2,642	5,031	2,577	2,364	3,097	3,994	6,213	3,256	4,819	7,402	4,583

Source: authors' calculations on Generations and Gender Surveys, survey-years are specified for each country, and the Italian Family and Social Subjects (2009) samples.

Table 3 shows the distribution of couples by country, according to their marital status at the time of co-residential union. The difference in the institutionalization of cohabitation and its diffusion across Europe shows up in a very simple way in Table 3. In countries where cohabitation has typically spread much slower and/or does not have a legal status yet, the majority of couples start co-residing directly by marrying. This holds for the Central-Eastern European countries (i.e. Poland, Lithuania, Hungary, Romania and, to a lesser extent, Czech Republic) and Italy. In Austria, Belgium, Bulgaria, Estonia, France and Norway, instead, the majority of partners start to co-reside as an unmarried couple and eventually marry.

Table 3 Distribution of couples by country and marital status at the time of union formation

Country	Cohabitation first		Direct marriage		Total	
	(N)	(%)	(N)	(%)	(N)	(%)
Austria	1988	84.0	378	16.0	2366	100
Belgium	1383	52.4	1259	47.7	2642	100
Bulgaria	3363	66.9	1668	33.2	5031	100
Czech Republic	1139	44.2	1438	55.8	2577	100
Estonia	1610	68.1	754	31.9	2364	100
France	2354	76.0	743	24.0	3097	100
Hungary	1224	30.7	2770	69.4	3994	100
Italy	1034	16.6	5179	83.4	6213	100
Lithuania	996	30.6	2260	69.4	3256	100
Norway	3808	79.0	1011	21.0	4819	100
Poland	1796	24.3	5606	75.7	7402	100
Romania	1008	22.0	3575	78.0	4583	100
Total	21703	44.9	26641	55.1	48344	100

Source: Authors' calculations on Generations and Gender Surveys and the Italian Family and Social Subjects (2009) samples.

Method

We applied multistate models to test our hypotheses about the effect of educational pairings on the chosen pathway of first birth. The multistate approach can account for possible changes in union status of the couples since they started to cohabit till the interview date. As we need information about

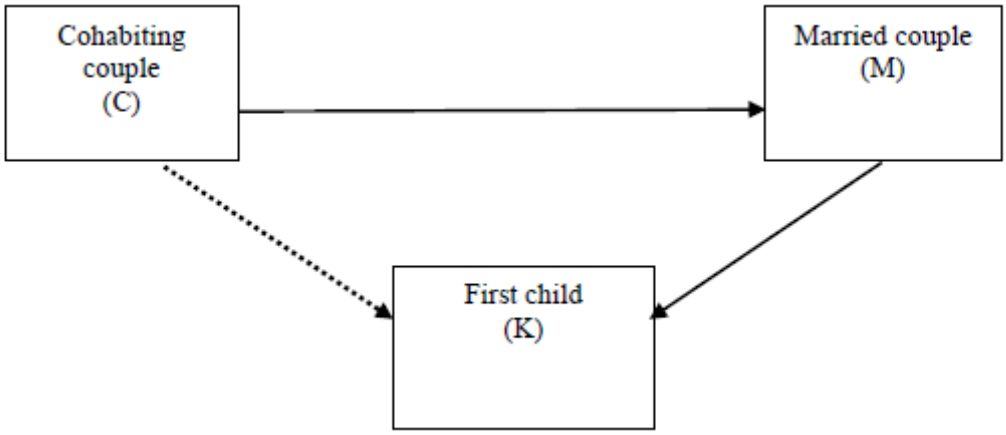
both his and her education, we focus on people who are in a union at the time of the interview since we only know the education of the current partner, not of earlier partners for most countries. On one hand, this has advantages with regard to the quality of reported fertility and partnership information (cf. Vergauwen et al. 2015), since people tend to report and better recall events related to the present. On the other hand, it is a limitation because couples who split up before the interview are left censored. This implies that we may underestimate non-marital childbearing, since cohabiting couples are more likely to split up (Kiernan 2004), and that hypogamous couples may be underrepresented in our study if they are less stable (as indicated by Blossfeld 2014; Jalovaara 2013; and Mäenpää and Jalovaara 2014; but not by Schwartz and Han 2014; Theunis et al. 2015).

We selected couples that were intact at the time of the interview and looked retrospectively at their changes in union status leading to the first shared birth, if it occurred. Unions that survived until the time of the interview may on average be more stable than the total population of couples ever formed. Obviously, unions formed during the years closer to the interview may be much more heterogeneous with regard to their stability (as they were not at risk yet to split up). To check how strongly this affected our results, we ran analyses only for recently formed unions (2000-2010) and found that our conclusions remained the same.

In this setup, our main event of interest is the birth of the first child, which represents the absorbing state in multistate terminology (Putter et al. 2007; Willekens 2014). Figure 1 shows all the possible transitions within our analytical state-space. At the start of the co-residential union, partners may cohabit (top left in Figure 1) or be married (top right). After marriage, couples are at risk of only one transition, i.e. transition to parenthood. Couples who started co-residence as an unmarried couple were at risk of two possible pathways. First, they may have gotten married and gotten a child afterwards (Figure 1 – solid line). Second, they may have a child within cohabitation (Figure 1 – dashed line). In the last case a separate analysis will be carried out to check which kind of couples will eventually marry after a non-marital birth. This model assumes a Markov process, implying that

the pathway of a couple and its timing will depend only on the present state and not on the event history of the couple.

Figure 1 State-space considered and possible transitions.



Once we have all the transition dates, we expand the dataset for each possible transition that the couple may experience, defining the entry into and the exit from that state (or the end of the observational period) and a status variable which defines if the transition has occurred or not. As in Putter et al. (2007), to estimate the model, we apply a Cox's proportional hazard model for each transition (i.e. stratified hazard model), separately country by country. Formally, the hazard for transition *i* to *j* for a couple with a covariate vector Z will be:

$$\lambda_{ij}(t|\boldsymbol{Z}) = \lambda_{ij,0(t)}\exp(\beta_{ij}^{T}\boldsymbol{Z})$$

Where $\lambda_{ij,0(t)}$ is the baseline hazard of transition *i* to *j* which is not parametrically specified, and β_{ij} are the regression coefficients which describe the effect of the covariate-profile of each couple. We have fitted the model by using the *mstate* package implemented in the R software (De Wreede, Fiocco and Putter 2011). The regression coefficients are estimated via the maximum likelihood method and we apply a stepwise modelling procedure to fit the best model. In order to evaluate the goodness of fit of the models we used the likelihood-ratio test. The likelihood-ratio test showed in Table B3 of Appendix A.2 indicates the increase in model fit after including the educational pairing

variable. We selected 12 countries which mirror the main family regimes in Europe and, rather than just pooling all countries, we replicate the analyses country by country to check how sensitive our main results are to context. Given the low number of countries that could be included, we are not able to address the role played by contextual factors.

Results

Figures 2, 3 and 4 show the main results relative to the effect of educational pairing for all the transitions considered (Appendix A.2 gives all the model estimates). Each of these figures consists of a grid of panels, with columns representing her educational attainment and rows representing his educational attainment, the lines represent 95% confidence intervals of the point estimate. Each panel shows a specific combination of her and his educational level to be compared with the reference category. The reference category are the medium educated homogamous couples, represented by the horizontal line in each panel. On the diagonal of each figure we find panels comparing the homogamous couples to the reference category (the panel in the very middle of each figure does not give estimates as this is the medium educated reference category). Above the diagonal, we have panels representing the results for the hypogamous couples, whereas the hypergamous ones are situated below the diagonal.

Figure 2 displays the hazard ratios for the transition from cohabitation to marriage. When focusing on the diagonal, we find that in countries where the difference is significant, low educated homogamous couples have a lower rate of transition from cohabitation to marriage compared to the reference category of medium educated homogamous couples. Austria is a striking exception: low educated homogamous couples are found to have almost 2.5 times higher transition rate to marriage compared to the medium homogamous couples. Additional inspection of the data revealed that this is related to the fact that migrant populations, who are typically more traditional with regard to the

type of union, are strongly represented among the low educated, which also supports previous findings about Austria by Berghammer et al. (2014).

The heterogamous couples, represented above and below the diagonal, generally tend not to be statistically different from the medium homogamous couples. However, when switching the reference category to the low educated homogamous couples, we notice that the heterogamous couples with at least one highly educated partner tend to have higher rates of marriage than low educated homogamous couples (see Appendix A.3 – Table C1 for all the pairwise contrasts). This difference holds for Bulgaria, Estonia, Italy, Lithuania and Romania, and it is in line with our expectations derived from the socio-economic *Hypothesis 1a*, according to which there is a positive educational gradient with regard to the transition from cohabitation to marriage

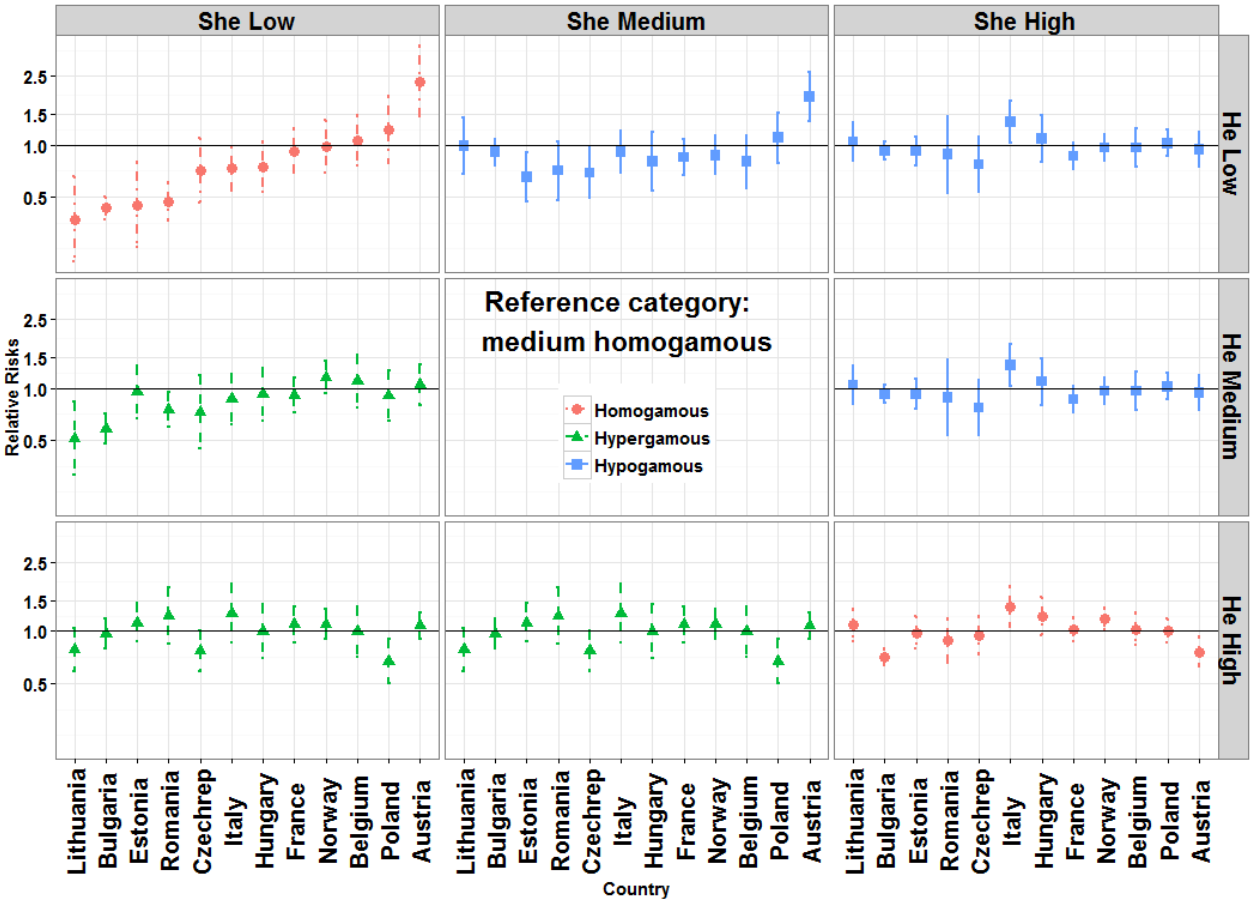
Moreover, there is no evidence for the second hypothesis, which is about the differences between homogamy and heterogamy. According to *Hypothesis 2*, we should find that homogamous partners have a higher transition rate from cohabitation to marriage compared to the heterogamous couples. After testing all the contrasts, for all levels of education, between homogamous couples and heterogamous couples (see Figure 2 and Appendix A.3 – Table C1), we found no significantly different transition rates from cohabitation to marriage. Basically, we find no empirical evidence for an effect of homogamy (or heterogamy) as such, when detached from the role of the absolute level of education of the partners.

In general, the results for the transition from cohabitation to marriage support the socio-economic argument of the first hypothesis (*1a*), whereas we did not find evidence that lends support to hypothesis *3a* according to which hypergamous couples have a higher rate of marriage compared to hypogamous couples. Still, we should highlight that beyond Austria, two more countries deviate from this general pattern. First, in Bulgaria, highly educated homogamous couples have a lower transition rate to marriage compared to the medium homogamous and the heterogamous couples. It remains

unclear why the presence of only one highly educated partner enhances the transition to marriage more than if the couple would be composed of two highly educated partners.

Second, Poland also represents a puzzling exception. Here, couples in which the man is highly educated and the woman is lower educated, are estimated to have a lower transition rate to marriage compared to all the homogamous and the hypogamous educational pairings. Among the countries considered, Poland represents a traditional context, where the diffusion of cohabitation has been relatively slow and the male-breadwinner model persists as main family model especially after the birth of the first child (Kotowska et al. 2008; Matysiak 2005). This result, however, contrasts with our expectations according to which, especially in traditional contexts, hypergamous couples are more prone to marriage than hypogamous ones (hypothesis *3a*).

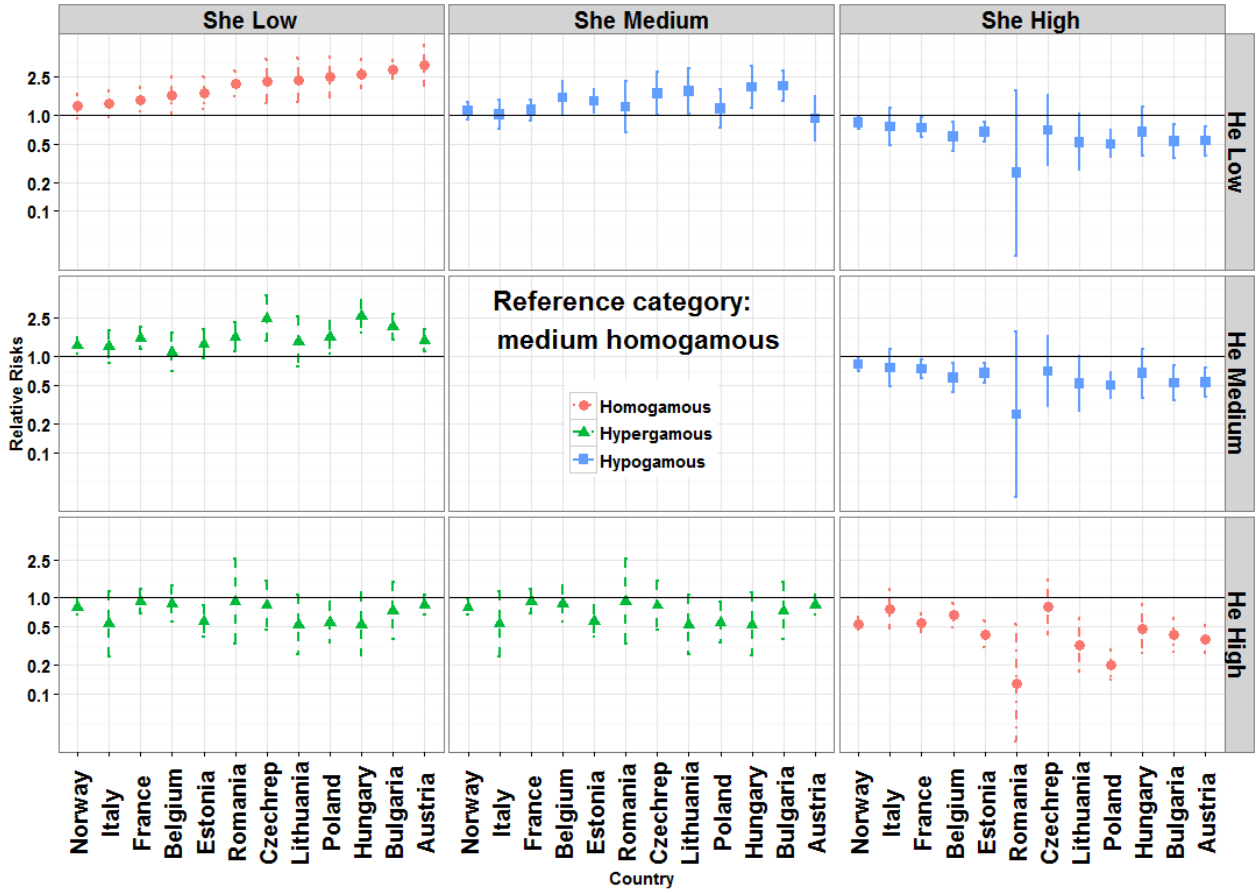
Figure 2 Hazard ratios for the transition from cohabitation to marriage



Source: Models' estimates (see Appendix A.2, Table B1), GGS and Italian FSS 2009

Next, Figure 3 shows hazard ratios for the transition from cohabitation to first birth. In all countries, low educated homogamous couples have higher non-marital birth rates compared to medium educated couples, whereas highly educated unmarried couples exhibit lower rates (diagonal Figure 3). In general, there are no statistically significant differences between heterogamous couples and the reference category (medium educated homogamous couples). Changing our reference category to highly or low educated homogamous couples, the results strongly support the socio-economic resource argument, i.e. hypothesis *1b*, according to which the presence of at least one highly educated partner should reduce the risk of a non-marital birth (see Appendix A.3 – Table C2 for all the pairwise contrasts). As the overall human-capital of the couple increases, the risk of non-marital family formation decreases in basically all countries. This is striking because it implies that there is no difference in family formation behaviour depending on whether it is the woman or the man who is the partner with more education. In both cases, the estimates point in the same direction.

Figure 3 Hazard ratios for the transition from cohabitation to first birth

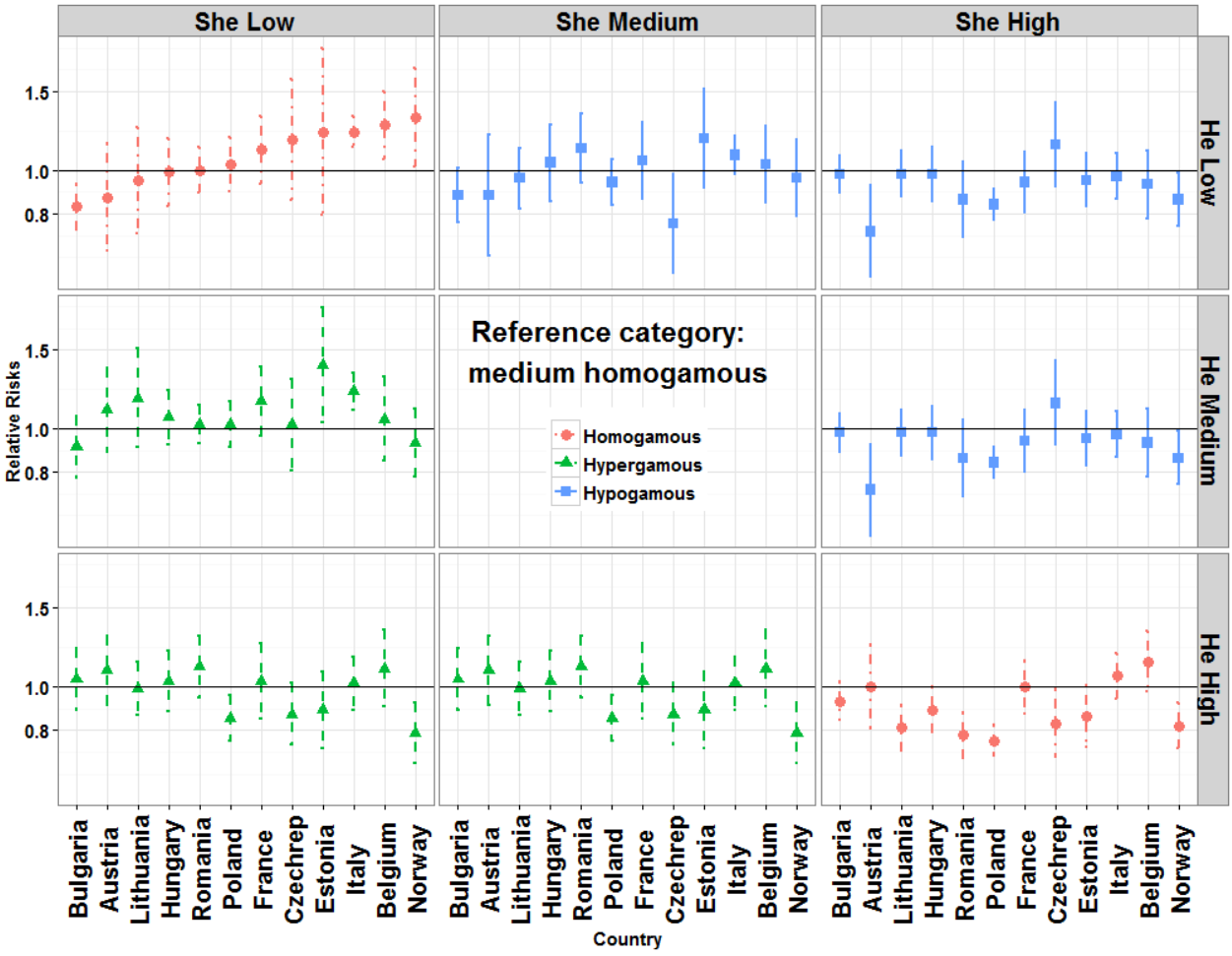


Source: Models' estimates (see Appendix A.2, Table B2), GGS and Italian FSS 2009

Figure 4 show the hazard ratios for the transition to parenthood after marriage. Here, we do not observe such a clear pattern as the one observed for the transition to a non-marital birth. The only exception is Norway, since we found a negative educational gradient in the transition to both marital and non-marital first birth, though in the latter case the gradient is less marked. Moreover, in Italy, similar to Norway, low educated homogamous couples have the highest marital birth rates compared to all the other educational pairings. In Italy, such a gradient is much stronger than the one found for non-marital births. These results are in line with previous findings according to which highly educated women in Italy have higher relative first birth risks within cohabitation relative to marriage compared to medium educated women (Perelli-Harris et al. 2010). In Bulgaria, in contrast, low educated homogamous couples tend to have lower marital birth rates compared to the medium educated

homogamous couples and the heterogamous couples with at least one highly educated partner (see Appendix A.3 – Table C3 for all the pairwise contrasts). In Austria and Romania, hypergamous couples, where men are highly educated, have a higher marital childbearing rate than hypogamous couples, where women are highly educated. These results provide evidence for hypothesis *3b*, according to which couples where the man is more educated than the woman are more prone to marital childbearing compared to couples where the woman is more educated than the man. Meanwhile there is no statistically significant difference between hypergamous and hypogamous couples where the partner with the highest level of education is *medium* rather than highly educated. Moreover, comparing patterns in the transition to parenthood in marriage and unmarried cohabitation, we notice that in Austria hypogamous couples with a highly educated woman had significantly lower birth rates overall compared to hypergamous couples formed by a man who is highly educated. This implies that, at least in Austria, where the male-breadwinner model has remained relatively strong (Prskawetz et al. 2008), hypogamous couples are not conducive to childbearing, irrespective of whether the couple is married or not.

Figure 4 Hazard ratios for the transition from marriage to first birth



Source: Models' estimates (see Appendix A.2, Table B3), GGS and Italian FSS 2009

We briefly discuss the effects of two additional couple level variables, namely the effect of the union's cohort and the age difference between partners. As expected, across European countries unions formed most recently between 2000-2010 had a lower transition rate to marriage compared to unions formed in the 1990s (our reference category). On the other hand, unions formed in the 1970s and '80s had a higher transition rate from cohabitation to marriage compared to the reference category. This cohort-effect is probably due to the fact that, *ceteris paribus*, unmarried cohabitation becomes over time more socially accepted and individuals tend to spend more time as an unmarried couple, feeling less the pressure to get married. We ran the same models by censoring the observation time after 5 or 10 years since co-residential union and the results were robust. Next, we did not find a

strong effect with regard to the age difference between partners. Also in other contexts the age difference between partners with regard to fertility within cohabiting unions was not found to be significant (cf. Wu 1996). The age difference between partners mattered the most for the transition from cohabitation to marriage: where the effect was significant, more traditional types of couples, i.e. those where he is older than her, tend to have a higher transition rate to marriage than couples where partners have a similar age. Such a finding is in line with the hypothesis that more traditional couples are more prone to marriage compared to other pairings, i.e. *hypothesis 3a*. However, this holds only for the transition from cohabitation to marriage, when it comes to childbearing, the effect of age difference is not significant.

Discussion: the beaten path to parenthood

In recent decades, an important focus of family demographic studies has been the determinants of non-marital childbearing. In particular, scholars have tended to focus on the association between socio-economic resources and the risk of having a non-marital birth for *women.* Rarely they have looked at male characteristics. Yet, this kind of approach disregarded the fact that marital and non-marital births typically occur within a union and considering only the characteristics of one partner may lead to a misinterpretation of the results.

In this study, we examined whether and how the educational pairing, i.e. how his and her education combine, affects the likelihood of first birth within marriage and cohabitation in twelve European countries. We investigated whether, beyond the role of the absolute level of education, which has been previously studied, there is an effect of educational assortative mating. We observed couples who are in a co-residential union and examined their pathways to parenthood by means of multistate modelling.

Overall, we found most support for our general first hypothesis, according to which a higher level of human capital is associated with a lower likelihood of non-marital family formation. This

hypothesis is based on the argument that educational resources, intended as indicator for long-term good economic prospects, may be perceived as prerequisites to marry. Our results show that couples with lower human capital tend to stay longer in an unmarried relationship compared to their counterparts with higher human capital (Hypothesis *1a*). Couples with lower human capital also tend to have a higher transition rate to a non-marital first birth in most of the countries considered. The presence of at least one highly educated partner, independently of whether it is he or she, inhibits the rate of non-marital first childbearing (Hypothesis *1b*). Moreover, additional analyses suggested that more education is positively associated with marriage rates even after having a first non-marital child (results not shown).

In line with previous findings, we did not find support for our second hypothesis about the role of homogamy, on top of the role of each partners' level of education, for the transition to marriage. According to this hypothesis, homogamous couples are more inclined to marry compared to the heterogamous ones (cf. Blackwell and Lichter 2000). The behaviour of educationally homogamous couples is not statistically different from that of educationally heterogamous couples. Rather, the transition to marriage depends on the overall human capital of the couple. Bulgaria is an interesting exception to this pattern: there, we found that couples where partners have different levels of education have higher marriage rates compared to the highly educated homogamous couples who, instead, are less likely to marry. This result contrasts both with our first and second hypotheses. It contrasts with Hypothesis *1a* because we expected that a higher level of human capital would enhance the transition to marriage and this is not the case in Bulgaria. Furthermore, it contrasts with our second hypothesis which is about the role of homogamy in marriage. In Bulgaria, our findings indicate that the heterogamous couples with at least one highly educated partner are more inclined to marry, instead. We can speculate that this occurs because of the advantages derived from a specialization model à la Becker, characterized by unequal but complementary socio-economic resources within the

couples, not attached to traditional gender roles in this case (Becker 1991; Schoen and Weinick 1993; Brines and Joyner 1999).

Next, we did not find evidence supporting our general third hypothesis, which focuses on the difference in the effect of his versus her education. Based on the Beckerian specialization model, we hypothesized that hypergamous couples are more inclined towards marital family formation compared to hypogamous couples for at least two reasons. First, couples where he has more education than her may reinforce traditional behaviours driven by the imbalance of socio-economic resources in favour of the man. Second, they may be more economically advantaged by the fact that, *ceteris paribus*, men earn on average more than women. Our results show that in most countries there is no statistically significant difference in the pathways to the first birth between hypergamous and hypogamous couples. Poland represents an exception: hypergamous couples composed of a highly educated man have a lower transition rate to marriage compared to the hypogamous couples and all the other homogamous educational pairings, which is in contrast with Hypothesis *3a*. Other studies focusing on Poland showed that couples in unmarried cohabitation are typical of unemployed people or people still enrolled in education who are supported economically by their parents (Kotowska et al. 2008; Matysiak 2009). This plausibly also explains our findings, since additional data-inspections revealed that those couples were formed mostly by young people who have not completed their education yet by the time they start their co-residence.

We should mention a number of limitations of this study. First of all, it is worth reminding that to answer our research question we limited our study to people who were in a union at the time of interview. By applying a multi-state framework, we could account for the selective exit from cohabitation via marriage of "surviving" unions, but we could not empirically test the role of divorce or separation. As a result, in our study we could not disentangle the two arguments based on whether commitment is manifested via marriage or via childbearing, since in our sample the more stable couples, i.e. where childbearing is more likely, are overrepresented. In the future, it would be

interesting to examine how educational assortative mating varies across union type and its interactions between union dissolution and childbearing. It could be that we underestimated the differential role of partners' education in our study, which has been cancelled out by considering mainly couples where childbearing is more likely. Moreover, the way the selectivity of the sample may have altered the results also depends on the country. In particular, results may be especially biased for those countries with a strong association between educational pairing and union dissolution rates. For instance, a previous study from Finland, which focused on *cohabiting* unions formed between 1995-2002, found that unions where the woman is more educated than the man were more likely to dissolve (Mäenpää and Jalovaara 2014). However, other studies showed that this may not hold for *marital* unions formed after the 1990s (cf. Schwartz and Han 2014 for the United States; Theunis et al. 2015 for Belgium). In order to check the sensitivity of our results to this selection, we ran analyses only for unions formed between 2000-2010 and we found that our conclusions remain the same. Moreover, given that for five countries (Austria, Bulgaria, Czech Republic, Estonia and Poland) we have information about previous partners' education, we checked how different the samples are for these countries when considering also dissolved unions. Eventually, the distribution of educational pairings remained very similar in the two samples and, despite the selection, the smaller sample included a substantial proportion of events relative to the bigger sample (results available upon request).

Our results point out that, among the more stable unions, the difference in partners' education rarely plays a role in the choice between marital or non-marital birth, rather it is the overall absolute level of education that matters. Still, future studies should test if accounting for the selective exit from cohabitation or marriage via union dissolution affects the role of educational pairings on fertility behaviour. This could be achieved by using longitudinal country-specific data, which have detailed information on the time of partnerships' formation and dissolution.

Next, it is also possible that we were unable to grasp the role of educational heterogamy because of measurement issues. Since heterogamy is less common than homogamy, we could not consider all

the possible pairings of partners' education due to small categories. By using a compound measure of educational pairing, which does not consider all the possible combinations, we may have overlooked the role of heterogamy. The absence of a statistically significant effect of heterogamy could be due to large standard errors. An obvious solution could be to use larger datasets. Alternatively, a diagonal reference model, which is a more parsimonious and interpretable approach to analyse dyads, may be an option (cf. Eeckhout et al. 2012), but diagonal reference models have not been implemented yet in combination with survival analysis. Measurement issues may be linked to another aspect: we could not include a time-varying covariate of educational pairing because of lack of information. Our results may suffer from anticipatory bias, since partners may have acquired their highest level of education after they start to co-reside. The use of more detailed data, which includes the full educational history of both partners, could help in avoiding anticipatory bias when applying event history analysis (Hoem and Kreyenfeld 2006).

Finally, it is worth reminding that estimates of the multistate model for the transition to first birth within each union context may still reflect the overall educational gradient in childbearing of the country and cohorts considered. An overall negative educational gradient in the transition to parenthood is usually linked to the fact that the more educated tend to postpone the birth of the first child. Basically, our results point out that the negative educational gradient in the transition to first birth tends to be steeper within cohabitation than marriage. It will be interesting to see whether this will hold in the future, given that in some countries (e.g. Belgium, France, Norway) changes over time have been detected: especially for cohorts born in the 1960s or later, the overall negative educational gradient is weakening or even turning positive (Kravdal and Rindfuss 2008; Goldscheider et al. 2015).

Despite these limitations, our study yields insight into how educational pairings are associated with pathways to parenthood. It showed that it is important to also consider the male partner's education since it can counterbalance the effect of women's education. What has been called the

"pattern of disadvantage" framework, which usually refers to non-marital childbearing, finds support in our study. The more educated partners do not necessarily avoid cohabitation altogether, but they are more likely to get married once they plan or expect to have a child, or after having a child already. For European countries, similarly to United States, our results highlight that the diffusion of non-marital childbearing among lower social strata may envisage a widening of social inequalities. Future studies could focus on children's well-being to assess whether and to what extent a lack of human capital among unmarried parents translates in disadvantages for the children. It is plausible to expect that in more "open" societies, where individuals have fewer constraints in partnering with people of a different socio-economic status, the consequences for children born from unmarried parents will be offset in the longer term.

As mentioned, we did not find a role of homogamy versus heterogamy. One reason could be that, in contexts where the majority of people acquires a high level of education, homogamy in lifestyles and values may not necessarily be linked much to the level of education. We may expect that educational assortative mating patterns linked to a specific field of study or occupation are more informative on how lifestyles affect the propensity for non-marital formation.

Interestingly, evidence in support of hypotheses based on socio-economic arguments appeared more consistent across different countries. Hypotheses based on the role of educational assortative mating, instead, did not have strong empirical support and no clear patterns have been found across countries. In order to uncover the mechanisms that link the mate selection processes to fertility, the challenge to integrate micro and macro level studies remains. It would be interesting to investigate whether a higher degree of heterogamy within a country, i.e. more "open" societies, tend to have higher levels of non-marital childbearing. A higher degree of heterogamy implies that the more educated people increasingly mate with lower educated partners. Partners of lower educated persons who may be considered less attractive on the mating market may be inclined to settle for a less committed partnership without renouncing childbearing. In particular, as some authors pointed out,

this may be the case for the highly educated women, given the recent changes in education-specific mating markets (Harknett 2008; Van Bavel 2012). Thus, the distribution of non-marital childbearing among different social strata may be affected by the changing composition of mating markets.

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Appendix A.1

Table A1 Sample selection for each GGS country and the Italian-FSS 2009

	GGS countries												FSS
	Austria 2008-09	Belgium 2008-10	Bulgaria 2004-05	CzechRep 2005	Estonia 2004-05	France 2005	Hungary 2004-05	Lithuania 2006	Norway 2007-08	Poland 2010-11	Romania 2005	Total	Italy 2009
Initial sample size	5000	7163	12858	10006	7855	10079	13540	10036	14880	19987	11986	123390	43850
Not in a union time of interview	1924	2281	4306	4490	2839	3991	4658	4305	4885	7709	3486	44874	22341
Same sex couples	7	60	9	29	0	59	4	0	56	8	0	232	//
Not born > 1950 (and for Italy being younger than 18 at time of interview) for the respondent	0	1295	2404	1735	1632	1995	3037	1632	2931	3082	2923	22666	7623
Not born > 1950 (and for Italy being younger than 18 at time of interview) for the respondent's partner	18	176	284	179	200	234	394	132	347	494	374	2832	1017
Children from previous relationships	476	573	421	544	791	599	534	417	1361	726	419	6861	264
Date union missing	15	16	18	98	0	5	652	34	78	7	5	928	//
Date birth missing	0	22	11	17	0	1	1	7	8	0	1	67	//
Date birth <= 0	177	65	185	292	18	86	174	232	288	503	150	2170	281
Woman's age missing or not in interval 15-45	17	31	184	25	11	12	69	10	35	16	45	455	82
Man's age union formation < 15	0	3	0	0	0	0	0	0	0	0	0	3	//
Date marriage missing	1	0	3	20	0	1	24	9	73	39	0	170	//
Respondent's age missing	0	0	1	0	0	0	0	0	0	0	0	1	//
Reported date of events after interview date	0	0	0	0	0	0	0	1	0	0	0	1	1
Male respondent (only Italy)	//	//	//	//	//	//	//	//	//	//	//	//	6028
Final N	2365	2641	5032	2577	2364	3097	3993	3257	4818	7403	4583	42130	6213
Previous sample selection (Final N)	2366	2642	5031	2577	2364	3097	3994	3256	4819	7402	4583	42131	6213

Note: Originally the sample selection has been done for all the GGS countries together. For this country-specific table, we have re-ran the sample selection. Since in case of missing information about the month of events we have used random imputation, variables related to the dates of events may have had few variations between the two runs of the sample-selection. This is why the country specific sample sizes reported here do not exactly add up to the total pooled sample size.

Appendix A.2

Table B1 Cox regressions by transitions: beta-coefficient estimates for the transition from cohabitation to marriage

Transition from cohabitation to marriage	AT	BE	BG	CZ	EE	FR	HU	IT	LT	NO	PL	RO
Sex(ref. Male)												
Female	-0.03	-0.11	0.05	0.03	-0.09	-0.11	-0.17		0.05	0.04	-0.004	0.01
	(0.07)	(0.07)	(0.04)	(0.08)	(0.08)	(0.06)	(0.09)		(0.08)	(0.05)	(0.06)	(0.08)
Woman's age at union	0.30***	0.05	0.32***	0.23**	0.33***	0.44***	0.24**	0.09	0.40***	0.36***	0.46***	0.20**
	(0.06)	(0.07)	(0.05)	(0.08)	(0.09)	(0.07)	(0.08)	(0.07)	(0.10)	(0.06)	(0.07)	(0.08)
Woman age at union (squared)	-0.004***	-0.001	-0.01***	-0.004**	-0.01***	-0.01***	-0.005**	-0.002	-0.01***	-0.01***	-0.01***	-0.004*
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Union's cohort (ref. 1990-1999)												
1967-1979	0.88	0.92***	0.63***	0.74***	1.12***	1.03***	0.89***	0.58**	0.37*	1.12***	0.45***	0.23
	(1.02)	(0.16)	(0.06)	(0.14)	(0.11)	(0.10)	(0.19)	(0.22)	(0.16)	(0.08)	(0.13)	(0.13)
1980-1989	0.46***	0.27**	0.56***	0.56***	0.84***	0.38***	0.51***	-0.04	0.39***	0.49***	0.19	0.15
	(0.09)	(0.10)	(0.05)	(0.10)	(0.09)	(0.07)	(0.10)	(0.15)	(0.11)	(0.06)	(0.11)	(0.10)
2000-2010	-0.24**	-0.58***	-0.64***	-0.55***	-0.32*	-0.31**	-0.61***	-0.01	-0.84***	-0.30***	-0.45***	-0.43***
	(0.08)	(0.09)	(0.07)	(0.11)	(0.13)	(0.10)	(0.13)	(0.10)	(0.11)	(0.09)	(0.08)	(0.12)
Respondent's union order (ref. 1st union)												
Higher order unions	-0.40***	-0.42***	-1.08***	-0.43*	-0.05	-0.35***	-0.22*	-0.11	-0.79***	-0.11	-0.56***	-0.80**
	(0.10)	(0.08)	(0.27)	(0.17)	(0.16)	(0.10)	(0.10)	(0.16)	(0.24)	(0.07)	(0.17)	(0.27)
Age difference (ref. Age homogamy or 1 year difference)												
Woman older(2+)	-0.24	-0.05	-0.30**	-0.19	-0.08	-0.21*	-0.31*	-0.03	-0.16	-0.20*	-0.13	-0.34*
	(0.12)	(0.13)	(0.09)	(0.17)	(0.13)	(0.10)	(0.15)	(0.16)	(0.15)	(0.09)	(0.10)	(0.17)
Man older (2-4 years)	0.15	0.25*	0.19***	0.08	0.09	0.02	0.02	0.04	0.07	0.08	0.03	0.17
	(0.08)	(0.10)	(0.06)	(0.10)	(0.09)	(0.07)	(0.12)	(0.12)	(0.11)	(0.06)	(0.08)	(0.12)
Man older (5+)	0.26**	0.35**	0.25***	0.10	0.19	0.05	-0.19	-0.17	0.14	0.12	0.07	-0.08
	(0.09)	(0.11)	(0.06)	(0.11)	(0.10)	(0.08)	(0.12)	(0.12)	(0.13)	(0.07)	(0.09)	(0.12)
NA		-0.38	0.26	-0.07								
		(0.72)	(0.29)	(1.03)								
Conception (ref. No conceived)												
Conceived	0.98***	0.92***	0.35***	0.93***	1.39***	0.80***	1.18***	1.01***	0.77***	0.97***	0.95***	0.70***
	(0.08)	(0.12)	(0.04)	(0.09)	(0.08)	(0.09)	(0.10)	(0.12)	(0.09)	(0.07)	(0.07)	(0.09)
Educational assortative mating (ref. Medium homogamous)												
Low homogamous	0.85***	0.06	-0.85***	-0.35	-0.79**	-0.08	-0.29	-0.32*	-1.00***	-0.02	0.21	-0.76***
	(0.24)	(0.17)	(0.08)	(0.22)	(0.29)	(0.15)	(0.17)	(0.15)	(0.29)	(0.18)	(0.23)	(0.13)
High homogamous	-0.28**	0.03	-0.34***	-0.06	-0.02	0.02	0.20	0.32*	0.08	0.17*	0.01	-0.12
	(0.10)	(0.11)	(0.06)	(0.13)	(0.11)	(0.08)	(0.13)	(0.14)	(0.11)	(0.07)	(0.08)	(0.15)
He high & She medium-low (Hypergamous)	0.07	-0.01	-0.03	-0.26	0.12	0.09	-0.0001	0.24	-0.24	0.09	-0.40**	0.20
	(0.09)	(0.17)	(0.10)	(0.14)	(0.13)	(0.12)	(0.18)	(0.20)	(0.15)	(0.10)	(0.15)	(0.19)
He medium & She low (Hypergamous)	0.04	0.09	-0.54***	-0.31	-0.05	-0.10	-0.08	-0.15	-0.68**	0.14	-0.11	-0.28*
	(0.14)	(0.18)	(0.10)	(0.25)	(0.18)	(0.12)	(0.18)	(0.17)	(0.25)	(0.11)	(0.17)	(0.12)
He medium-low & She high (Hypogamous)	-0.06	-0.04	-0.09	-0.26	-0.08	-0.15	0.09	0.30*	0.04	-0.04	0.02	-0.12
	(0.12)	(0.13)	(0.06)	(0.19)	(0.10)	(0.09)	(0.16)	(0.14)	(0.13)	(0.09)	(0.09)	(0.26)
He low &and She medium (Hypogamous)	0.64***	-0.22	-0.09	-0.38*	-0.43**	-0.16	-0.23	-0.09	-0.01	-0.14	0.09	-0.35
	(0.17)	(0.18)	(0.09)	(0.17)	(0.17)	(0.12)	(0.20)	(0.14)	(0.19)	(0.13)	(0.17)	(0.20)
NA		0.01	0.11	-0.10		-0.13				-0.94***	-0.07	
		(0.30)	(0.50)	(0.26)		(0.41)				(0.13)	(0.32)	

Notes: standard errors in parentheses; *p < .05; **p < .01; ***p < .001

Table B2 Cox regressions by transitions: beta-coefficient estimates for the transition from cohabitation to first child

Transition from cohabitation to first child	AT	BE	BG	CZ	EE	FR	HU	IT	LT	NO	PL	RO
Sex(ref. Male)												
Female	0.14	0.12	0.09	0.09	-0.13	0.04	-0.10		0.24	0.03	0.15	0.05
	(0.09)	(0.10)	(0.09)	(0.16)	(0.09)	(0.07)	(0.13)		(0.17)	(0.05)	(0.10)	(0.12)
Woman age at union	0.31***	0.12	0.14	-0.04	0.55***	0.20**	0.08	-0.13	0.19	0.20***	0.10	0.09
	(0.08)	(0.09)	(0.09)	(0.12)	(0.10)	(0.06)	(0.10)	(0.07)	(0.13)	(0.05)	(0.08)	(0.12)
Woman age at union (squared)	-0.01***	-0.002	-0.004	0.0001	-0.01***	-0.004**	-0.002	0.002	-0.004	-0.003***	-0.003	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)	(0.002)	(0.002)
Union's cohort (ref. 1990-1999)												
1967-1979	0.71	0.14	-0.25	-0.15	-0.62**	-0.29	-0.89*	-0.02	0.41	-0.47***	-0.27	0.33
	(1.02)	(0.35)	(0.16)	(0.35)	(0.21)	(0.19)	(0.38)	(0.40)	(0.42)	(0.12)	(0.27)	(0.19)
1980-1989	0.27*	-0.55**	-0.23	0.33	0.03	-0.23*	-0.34	0.13	0.17	-0.27***	0.09	0.31*
	(0.12)	(0.19)	(0.12)	(0.23)	(0.12)	(0.09)	(0.19)	(0.20)	(0.28)	(0.06)	(0.19)	(0.15)
2000-2010	0.07	0.52***	-0.08	-0.06	-0.57***	0.20	0.11	0.30*	-0.13	0.04	-0.003	-0.09
	(0.09)	(0.12)	(0.11)	(0.18)	(0.12)	(0.10)	(0.17)	(0.14)	(0.20)	(0.07)	(0.13)	(0.18)
Respondent's union order (ref. 1st union)												
Higher order union	-0.12	0.02	-0.26	-0.07	-0.03	0.12	-0.25	0.32	0.09	0.19**	0.25	0.46
	(0.12)	(0.11)	(0.27)	(0.30)	(0.15)	(0.11)	(0.15)	(0.20)	(0.33)	(0.06)	(0.20)	(0.26)
NA								0.36**				
								(0.13)				
Age difference (ref. Age homogamy or 1 year difference)												
Woman older(2+)	0.18	-0.001	-0.42*	0.85**	0.06	0.13	0.30	0.14	0.38	0.01	0.25	-0.16
	(0.14)	(0.17)	(0.18)	(0.27)	(0.15)	(0.13)	(0.23)	(0.22)	(0.32)	(0.09)	(0.18)	(0.30)
Man older (2-4 years)	0.13	0.08	-0.25*	0.25	0.05	0.23*	-0.03	0.25	0.40	0.07	0.16	-0.08
	(0.11)	(0.13)	(0.12)	(0.23)	(0.12)	(0.10)	(0.20)	(0.16)	(0.25)	(0.07)	(0.14)	(0.21)
Man older (5+)	0.15	0.19	-0.01	0.60**	0.19	0.30**	0.15	0.11	0.25	0.16*	0.15	0.07
	(0.12)	(0.15)	(0.12)	(0.23)	(0.12)	(0.11)	(0.19)	(0.16)	(0.27)	(0.07)	(0.15)	(0.20)
NA		-1.62	-0.70				-0.33					
		(1.02)	(0.72)				(0.75)					
Educational assortative mating (ref. Medium homogamous)												
Low homogamous	1.20***	0.47*	1.09***	0.82**	0.54**	0.37*	0.99***	0.27	0.85**	0.22	0.91***	0.75***
	(0.25)	(0.23)	(0.12)	(0.27)	(0.20)	(0.15)	(0.18)	(0.16)	(0.27)	(0.15)	(0.25)	(0.16)
High homogamous	-1.00***	-0.42**	-0.88***	-0.22	-0.87***	-0.59***	-0.74*	-0.27	-1.13***	-0.61***	-1.61***	-2.04**
	(0.17)	(0.15)	(0.21)	(0.33)	(0.16)	(0.11)	(0.30)	(0.24)	(0.33)	(0.08)	(0.19)	(0.72)
He high & She medium-low (Hypergamous)	-0.17	-0.15	-0.31	-0.19	-0.56**	-0.08	-0.64	-0.62	-0.66	-0.22*	-0.60*	-0.09
	(0.12)	(0.22)	(0.35)	(0.30)	(0.19)	(0.15)	(0.39)	(0.40)	(0.36)	(0.10)	(0.25)	(0.52)
He medium & She low (Hypergamous)	0.38**	0.11	0.70***	0.92**	0.31	0.44***	0.96***	0.23	0.35	0.25*	0.45*	0.47**
	(0.14)	(0.24)	(0.16)	(0.28)	(0.18)	(0.13)	(0.20)	(0.20)	(0.31)	(0.10)	(0.20)	(0.18)
He medium-low & She high (Hypogamous)	-0.61***	-0.51**	-0.64**	-0.36	-0.41***	-0.30**	-0.40	-0.27	-0.65	-0.19*	-0.69***	-1.40
	(0.18)	(0.18)	(0.21)	(0.43)	(0.12)	(0.12)	(0.30)	(0.23)	(0.34)	(0.08)	(0.16)	(1.01)
He low &and She medium (Hypogamous)	-0.09	0.42*	0.70***	0.51	0.33*	0.12	0.67**	0.01	0.58*	0.10	0.15	0.20
	(0.27)	(0.20)	(0.19)	(0.26)	(0.14)	(0.13)	(0.25)	(0.18)	(0.28)	(0.11)	(0.23)	(0.31)
NA		-1.17		-0.44		-0.06				-1.46***	0.24	
		(0.72)		(0.72)		(0.45)				(0.11)	(0.39)	

Notes: standard errors in parentheses; *p < .05; **p < .01; ***p < .001

Table B3 Cox regressions by transitions: beta-coefficient estimates for the transition from marriage to first child

Transition from marriage to first child	AT	BE	BG	CZ	EE	FR	HU	IT	LT	NO	PL	RO
Sex(ref. Male)												
Female	0.09	0.01	0.09**	0.04	0.06	0.06	-0.004		0.07	-0.04	0.12***	0.05
	(0.06)	(0.05)	(0.03)	(0.05)	(0.06)	(0.05)	(0.04)		(0.04)	(0.04)	(0.03)	(0.03)
Woman age at union	-0.03	0.12*	0.06	0.11	0.04	0.05	0.13**	0.05	-0.004	0.17***	-0.11***	-0.04
	(0.06)	(0.06)	(0.04)	(0.06)	(0.07)	(0.06)	(0.05)	(0.03)	(0.05)	(0.05)	(0.03)	(0.04)
Woman age at union (squared)	-0.0001	-0.003*	-0.002*	-0.003*	-0.002	-0.002	-0.003***	-0.002**	-0.001	-0.003***	0.001	0.0001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Union's cohort (ref. 1990-1999)												
1967-1979	1.15	-0.34***	-0.14**	-0.30***	-0.03	-0.04	-0.97***	0.005	-0.22***	0.09	-0.05	-0.02
	(1.02)	(0.07)	(0.05)	(0.07)	(0.08)	(0.07)	(0.05)	(0.05)	(0.06)	(0.06)	(0.04)	(0.05)
1980-1989	-0.15*	-0.06	-0.01	-0.07	0.11	-0.17**	0.03	0.04	-0.12*	-0.02	0.003	0.06
	(0.08)	(0.06)	(0.04)	(0.06)	(0.07)	(0.06)	(0.05)	(0.04)	(0.05)	(0.05)	(0.03)	(0.04)
2000-2010	-0.20*	0.11	0.07	-0.34***	-0.33*	-0.12	-0.09	0.004	-0.10	-0.16*	0.02	-0.24***
	(0.08)	(0.08)	(0.07)	(0.09)	(0.13)	(0.12)	(0.08)	(0.04)	(0.07)	(0.08)	(0.04)	(0.07)
Respondent's union order (ref. 1st union)												
Higher order unions	0.05	0.14*	-0.19	0.13	-0.17	-0.06	0.19*	0.15	0.19	0.14*	0.06	-0.02
	(0.11)	(0.06)	(0.22)	(0.13)	(0.15)	(0.10)	(0.08)	(0.14)	(0.20)	(0.07)	(0.16)	(0.19)
Age difference (ref. Age homogamy or 1 year difference)												
Woman older(2+)	0.15	0.06	0.02	0.08	0.04	-0.03	0.10	0.03	0.18*	-0.14	0.18***	0.02
	(0.12)	(0.09)	(0.08)	(0.12)	(0.10)	(0.09)	(0.08)	(0.07)	(0.08)	(0.08)	(0.05)	(0.07)
Man older (2-4 years)	0.002	-0.09	-0.04	0.02	-0.01	0.02	-0.01	-0.03	0.003	-0.02	-0.04	-0.003
	(0.08)	(0.06)	(0.04)	(0.06)	(0.07)	(0.06)	(0.05)	(0.04)	(0.05)	(0.05)	(0.03)	(0.05)
Man older (5+)	-0.05	0.01	-0.09	-0.14*	-0.10	0.01	0.05	-0.01	-0.03	-0.07	-0.11**	0.05
	(0.09)	(0.07)	(0.05)	(0.07)	(0.08)	(0.07)	(0.06)	(0.04)	(0.06)	(0.06)	(0.04)	(0.05)
NA		-0.26	-0.13	-0.48			0.40		-0.21			
		(0.36)	(0.24)	(0.51)			(0.58)		(1.00)			
Educational assortative mating (ref. Medium homogamous)												
Low homogamous	-0.14	0.23*	-0.19**	0.15	0.20	0.10	-0.01	0.20***	-0.06	0.27*	0.03	-0.003
	(0.14)	(0.09)	(0.06)	(0.16)	(0.22)	(0.09)	(0.09)	(0.04)	(0.14)	(0.13)	(0.07)	(0.06)
High homogamous	0.001	0.13	-0.07	-0.19*	-0.15	0.005	-0.12	0.06	-0.21***	-0.20***	-0.27***	-0.25***
	(0.11)	(0.08)	(0.05)	(0.09)	(0.08)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)	(0.04)	(0.06)
He high & She medium-low (Hypergamous)	0.09	0.10	0.04	-0.14	-0.11	0.03	0.03	0.02	-0.01	-0.24**	-0.16*	0.10
	(0.09)	(0.10)	(0.08)	(0.08)	(0.10)	(0.10)	(0.08)	(0.07)	(0.07)	(0.08)	(0.06)	(0.08)
He medium & She low (Hypergamous)	0.10	0.05	-0.09	0.02	0.33*	0.14	0.06	0.19***	0.16	-0.07	0.02	0.02
	(0.11)	(0.11)	(0.08)	(0.12)	(0.15)	(0.09)	(0.07)	(0.05)	(0.13)	(0.09)	(0.06)	(0.05)
He medium-low & She high (Hypogamous)	-0.32**	-0.07	-0.02	0.13	-0.05	-0.07	-0.02	-0.03	-0.02	-0.15*	-0.17***	-0.16
	(0.12)	(0.09)	(0.05)	(0.11)	(0.07)	(0.08)	(0.07)	(0.06)	(0.06)	(0.07)	(0.04)	(0.10)
He low &and She medium (Hypogamous)	-0.13	0.03	-0.12	-0.27*	0.17	0.05	0.04	0.07	-0.04	-0.04	-0.06	0.11
	(0.16)	(0.10)	(0.07)	(0.13)	(0.13)	(0.10)	(0.10)	(0.05)	(0.08)	(0.10)	(0.06)	(0.09)
NA		0.57**	-0.69	-0.50**		-0.06			0.26	-0.18	-0.05	
		(0.18)	(0.36)	(0.16)		(0.34)			(0.71)	(0.12)	(0.16)	
N-episodes	5,328	4,765	11,009	4,387	4,761	6,689	5,782	7,783	4,832	10,197	10,339	6,245
Log Likelihood	-16,792	-18,651	-51,937	-17,173	-17,172	-24,508	-25,269	-44,330	-22,351	-38,065	-57,873	-33,413
	463.57*	381.59**	1,276.04**	454.14**	943.29**	444.88**	888.29**	336.02**	440.22**	1,312.17**	934.51**	492.53**
LR Test	**	*	*	*	*	*	*	*	*	*	*	*

Notes: standard errors in parentheses; *p < .05; **p < .01; ***p < .001

Appendix A.3

Table C1 Pairwise comparisons between levels of the educational pairing variable for the transition from cohabitation to marriage. Beta coefficients, reference category in bold

	AT	BE	BG	CZ	EE	FR	HU	IT	LT	NO	PL	RO
Low vs **High homogamous**	1.13***	0.03	-0.51***	-0.29	-0.77**	-0.11	-0.49*	-0.64***	-1.08***	-0.19	0.20	-0.64***
	(0.25)	(0.16)	(0.09)	(0.25)	(0.30)	(0.15)	(0.20)	(0.17)	(0.20)	(0.18)	(0.24)	(0.18)
He high She lower (Hypergamous) vs **High homogamous**	0.35**	-0.04	0.31**	-0.20	0.13	0.06	-0.20	-0.09	-0.33*	-0.07	-0.41**	0.33
	(0.12)	(0.15)	(0.11)	(0.18)	(0.15)	(0.12)	(0.20)	(0.21)	(0.17)	(0.09)	(0.16)	(0.23)
He medium She low (Hypergamous) vs **High homogamous**	0.32*	0.06	-0.20	-0.25	-0.04	-0.12	-0.28	-0.48*	-0.77**	-0.03	-0.16	-0.16
	(0.16)	(0.17)	(0.11)	(0.28)	(0.19)	(0.12)	(0.20)	(0.19)	(0.26)	(0.11)	(0.18)	(0.18)
He lower She high (Hypogamous) vs **High homogamous**	0.22	-0.07	0.25***	-0.21	-0.07	-0.17	-0.11	-0.02	-0.04	-0.21**	0.01	0.00
	(0.15)	(0.11)	(0.07)	(0.22)	(0.12)	(0.09)	(0.18)	(0.16)	(0.15)	(0.08)	(0.09)	(0.28)
He low She medium (Hypogamous) vs **High homogamous**	0.92***	-0.26	0.25*	-0.32	-0.41*	-0.19	-0.43	-0.41*	-0.09	-0.31*	0.09	-0.22
	(0.19)	(0.17)	(0.10)	(0.20)	(0.18)	(0.12)	(0.23)	(0.16)	(0.20)	(0.13)	(0.18)	(0.24)
He high She lower (Hypergamous) vs **Low homogamous**	-0.77**	-0.07	0.82***	0.09	0.91**	0.17	0.29	0.55*	0.75*	0.12	-0.61*	0.97***
	(0.25)	(0.20)	(0.12)	(0.25)	(0.31)	(0.17)	(0.24)	(0.22)	(0.31)	(0.19)	(0.27)	(0.22)
He medium She low (Hypergamous) vs **Low homogamous**	-0.81**	0.03	0.32**	0.03	0.74*	-0.02	0.21	0.16	0.31	0.16	-0.32	0.48**
	(0.27)	(0.21)	(0.12)	(0.32)	(0.33)	(0.18)	(0.23)	(0.19)	(0.37)	(0.19)	(0.28)	(0.15)
He lower She high (Hypogamous) vs **Low homogamous**	-0.90***	-0.10	0.77***	0.08	0.71*	-0.07	0.38	0.62***	1.04***	-0.02	-0.19	0.64*
	(0.26)	(0.17)	(0.09)	(0.28)	(0.30)	(0.16)	(0.22)	(0.17)	(0.31)	(0.18)	(0.25)	(0.28)
He low She medium (Hypogamous) vs **Low homogamous**	-0.21	-0.28	0.76***	-0.03	0.36	-0.08	0.06	0.23	0.99**	-0.12	-0.12	0.42
	(0.28)	(0.21)	(0.11)	(0.27)	(0.32)	(0.18)	(0.25)	(0.16)	(0.33)	(0.21)	(0.28)	(0.22)
He lower She high (Hypogamous) vs **He high She lower (Hypergamous)**	-0.13	-0.03	-0.06	-0.00	-0.20	-0.24	0.09	0.07	0.28	-0.13	0.42**	-0.33
	(0.14)	(0.17)	(0.11)	(0.22)	(0.15)	(0.13)	(0.23)	(0.21)	(0.18)	(0.10)	(0.16)	(0.31)
He low She medium vs **He medium She low (Hypergamous)**	0.61**	-0.32	0.45***	-0.06	-0.38	-0.06	-0.15	0.07	0.68*	-0.28	0.20	-0.07
	(0.21)	(0.22)	(0.13)	(0.30)	(0.23)	(0.16)	(0.26)	(0.19)	(0.30)	(0.15)	(0.23)	(0.22)

Notes: standard errors in parentheses; *p < .05; **p < .01; ***p < .001

Table C2 Pairwise comparisons between levels of the educational pairing variable for the transition from cohabitation to first child. Beta coefficients, reference category in bold

	AT	BE	BG	CZ	EE	FR	HU	IT	LT	NO	PL	RO
Low vs **High homogamous**	2.21***	0.88***	1.97***	1.04*	1.41***	0.96***	1.73***	0.54*	1.98***	0.84***	2.52***	2.79***
	(0.30)	(0.21)	(0.21)	(0.41)	(0.24)	(0.17)	(0.33)	(0.24)	(0.40)	(0.15)	(0.31)	(0.72)
He high She lower (Hypergamous) vs												
High homogamous	0.83***	0.27	0.58	0.03	0.31	0.51**	0.10	-0.35	0.48	0.40***	1.01***	1.94*
	(0.19)	(0.20)	(0.38)	(0.41)	(0.23)	(0.16)	(0.47)	(0.43)	(0.46)	(0.11)	(0.29)	(0.87)
He medium She low (Hypergamous) vs												
High homogamous	1.38***	0.52*	1.59***	1.14**	1.17***	1.03***	1.71***	0.50	1.48***	0.87***	2.07***	2.51***
	(0.21)	(0.22)	(0.24)	(0.42)	(0.23)	(0.14)	(0.33)	(0.26)	(0.42)	(0.10)	(0.26)	(0.73)
He lower She high (Hypogamous) vs												
High homogamous	0.39	-0.09	0.24	-0.14	0.46**	0.30*	0.34	-0.01	0.48	0.43***	0.93***	0.64
	(0.23)	(0.16)	(0.27)	(0.52)	(0.18)	(0.13)	(0.40)	(0.29)	(0.44)	(0.08)	(0.22)	(1.23)
He low She medium (Hypogamous) vs												
High homogamous	0.92**	0.83***	1.59***	0.74	1.20***	0.72***	1.41***	0.28	1.71***	0.71***	1.76***	2.24**
	(0.31)	(0.19)	(0.26)	(0.39)	(0.19)	(0.14)	(0.37)	(0.25)	(0.40)	(0.11)	(0.29)	(0.77)
He high She lower (Hypergamous) vs												
Low homogamous	-1.38***	-0.62*	-1.39***	-1.01**	-1.10***	-0.45*	-1.63***	-0.89*	-1.51***	-0.44**	-1.51***	-0.85
	(0.27)	(0.26)	(0.34)	(0.38)	(0.26)	(0.20)	(0.42)	(0.40)	(0.41)	(0.17)	(0.34)	(0.52)
He medium She low (Hypergamous) vs												
Low homogamous	-0.83**	-0.36	-0.38*	0.10	-0.24	0.07	-0.03	-0.04	-0.50	0.03	-0.46	-0.28
	(0.28)	(0.28)	(0.15)	(0.35)	(0.25)	(0.18)	(0.23)	(0.20)	(0.36)	(0.17)	(0.30)	(0.16)
He lower She high (Hypogamous) vs												
Low homogamous	-1.81***	-0.98***	-1.72***	-1.18*	-0.95***	-0.67***	-1.39***	-0.55*	-1.50***	-0.41**	-1.59***	-2.15*
	(0.30)	(0.23)	(0.22)	(0.49)	(0.22)	(0.17)	(0.33)	(0.24)	(0.40)	(0.15)	(0.29)	(1.01)
He low She medium (Hypogamous) vs												
Low homogamous	-1.29***	-0.05	-0.38*	-0.31	-0.21	-0.25	-0.32	-0.26	-0.27	-0.13	-0.76*	-0.55
	(0.36)	(0.25)	(0.18)	(0.35)	(0.22)	(0.18)	(0.27)	(0.18)	(0.34)	(0.17)	(0.33)	(0.30)
He lower She high (Hypogamous) vs												
He high She lower (Hypergamous)	-0.44*	-0.36	-0.31	-0.18	0.16	-0.21	0.24	0.35	0.00	0.03	-0.09	-1.30
	(0.21)	(0.22)	(0.39)	(0.50)	(0.21)	(0.17)	(0.47)	(0.43)	(0.47)	(0.11)	(0.28)	(1.12)
He low She medium vs												
He medium She low (Hypergamous)	-0.46	0.31	0.01	-0.40	0.02	-0.32*	-0.30	-0.22	0.23	-0.15	-0.31	-0.27
	(0.29)	(0.26)	(0.22)	(0.36)	(0.21)	(0.16)	(0.28)	(0.22)	(0.37)	(0.13)	(0.28)	(0.31)

Notes: standard errors in parentheses; *p < .05; **p < .01; ***p < .001

Table C3 Pairwise comparisons between levels of the educational pairing variable for the transition from marriage to first child. Beta coefficients, reference category in bold

	AT	BE	BG	CZ	EE	FR	HU	IT	LT	NO	PL	RO
Low vs **High homogamous**	-0.14	0.10	-0.11	0.34	0.35	0.10	0.11	0.14*	0.16	0.47***	0.30***	0.25**
	(0.17)	(0.09)	(0.07)	(0.18)	(0.23)	(0.10)	(0.10)	(0.07)	(0.15)	(0.13)	(0.08)	(0.08)
He high She lower (Hypergamous) vs												
High homogamous	0.09	-0.03	0.12	0.05	0.04	0.03	0.15	-0.04	0.21*	-0.04	0.11	0.35***
	(0.12)	(0.10)	(0.09)	(0.11)	(0.12)	(0.10)	(0.10)	(0.09)	(0.09)	(0.08)	(0.07)	(0.10)
He medium She low (Hypergamous) vs												
High homogamous	0.09	-0.08	-0.02	0.20	0.48**	0.14	0.18*	0.13	0.37**	0.13	0.29***	0.27***
	(0.14)	(0.10)	(0.09)	(0.14)	(0.16)	(0.09)	(0.09)	(0.07)	(0.14)	(0.09)	(0.07)	(0.08)
He lower She high (Hypogamous) vs												
High homogamous	-0.32*	-0.20*	0.06	0.31*	0.10	-0.07	0.11	-0.09	0.19**	0.05	0.10*	0.09
	(0.15)	(0.08)	(0.06)	(0.13)	(0.09)	(0.09)	(0.08)	(0.08)	(0.07)	(0.06)	(0.05)	(0.12)
He low She medium (Hypogamous) vs												
High homogamous	-0.13	-0.10	-0.05	-0.08	0.31*	0.04	0.16	0.02	0.17	0.16	0.22**	0.36***
	(0.19)	(0.10)	(0.08)	(0.15)	(0.14)	(0.10)	(0.11)	(0.07)	(0.10)	(0.10)	(0.07)	(0.11)
He high She lower (Hypergamous) vs												
Low homogamous	0.23	-0.14	0.23*	-0.30	-0.31	-0.07	0.04	-0.18*	0.05	-0.51***	-0.19	0.10
	(0.16)	(0.11)	(0.10)	(0.18)	(0.24)	(0.11)	(0.12)	(0.07)	(0.15)	(0.14)	(0.10)	(0.09)
He medium She low (Hypergamous) vs												
Low homogamous	0.23	-0.19	0.09	-0.14	0.13	0.04	0.07	-0.00	0.22	-0.34*	-0.01	0.02
	(0.17)	(0.11)	(0.09)	(0.19)	(0.26)	(0.10)	(0.10)	(0.05)	(0.19)	(0.14)	(0.09)	(0.06)
He lower She high (Hypogamous) vs												
Low homogamous	-0.18	-0.30**	0.17*	-0.03	-0.25	-0.17	-0.00	-0.23***	0.04	-0.42**	-0.20*	-0.15
	(0.18)	(0.10)	(0.07)	(0.19)	(0.23)	(0.11)	(0.10)	(0.06)	(0.15)	(0.14)	(0.08)	(0.11)
He low She medium (Hypogamous) vs												
Low homogamous	0.00	-0.20	0.06	-0.43*	-0.04	-0.06	0.05	-0.12**	0.02	-0.32*	-0.08	0.12
	(0.21)	(0.11)	(0.09)	(0.20)	(0.25)	(0.12)	(0.13)	(0.05)	(0.16)	(0.16)	(0.09)	(0.10)
He lower She high (Hypogamous) vs												
He high She lower (Hypergamous)	-0.41**	-0.17	-0.06	0.27*	0.06	-0.10	-0.04	-0.05	-0.01	0.09	-0.01	-0.26*
	(0.14)	(0.11)	(0.09)	(0.13)	(0.11)	(0.11)	(0.10)	(0.08)	(0.09)	(0.09)	(0.07)	(0.13)
He low She medium vs												
He medium She low (Hypergamous)	-0.23	-0.02	-0.03	-0.29	-0.16	-0.10	-0.02	-0.12*	-0.20	0.02	-0.07	0.09
	(0.19)	(0.12)	(0.10)	(0.17)	(0.19)	(0.11)	(0.11)	(0.06)	(0.15)	(0.12)	(0.08)	(0.10)

Notes: standard errors in parentheses; *p < .05; **p < .01; ***p < .001